Assignment Day 5 | 4th December 2020

For any doubts regarding the assignment, ask questions in the Linux Administration 101 B1 Group in the Community.
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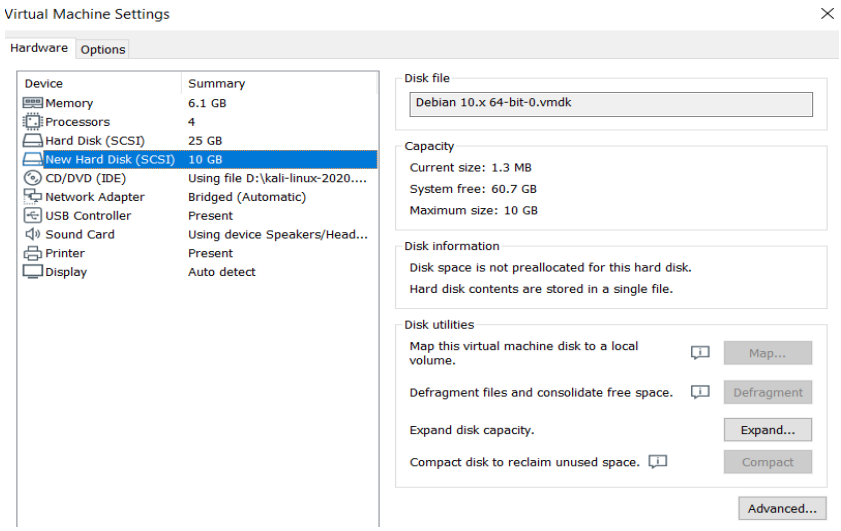
Submit assignments in Appropriate Dropdowns.

Question 1

1. Add a 10GB disk to the CentOS.
2. Create 2 Partitions 4GB and 6GB of Space respectively.
3. Format 4GB with xfs and 6GB with ext4 file system.
4. Mount 4GB and 6GB in /data and /music directory respectively.
5. Create one file of 1GB in each of the mount point created above.
6. Verify the disk Consumption and disk space free in the mounted partitions.

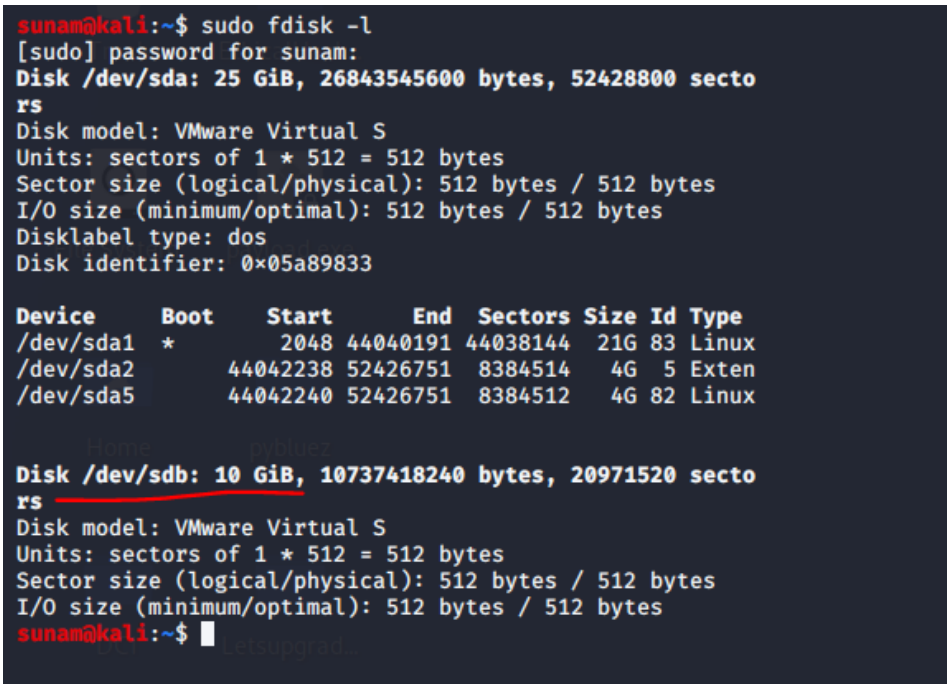
1. Adding Extra 10 GB disk to the Linux Machine (Kali Linux)



i. Go to virtual machine settings of particular machine

ii. Add hard disk and specify size of disk to extend.

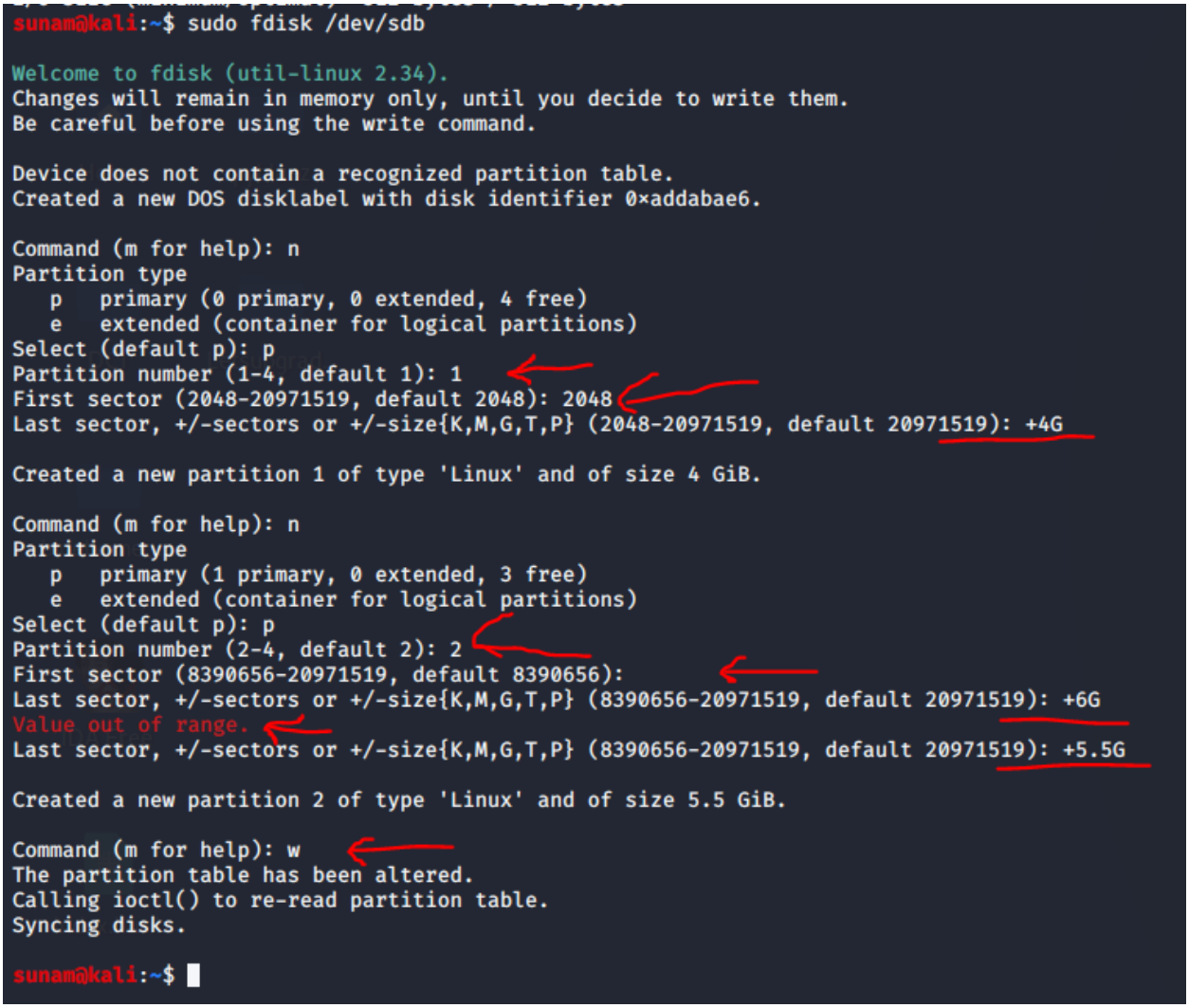
2. Verify the disk whether it is added to the machine or not.



i. Open the terminal on the machine.

ii. Execute fdisk -l command which list the disks assigned to the machine. And it also list the partitioning of the disks if it was done previously.

3. Creating partitions on newly added disk i.e. 10 GB



i. Execute fdisk [disk name] command to do the partitioning.
ii. It will ask for the type of partition, partition number and first sector and last sector.
iii. Here we created two partitions of 4 GB and 5.5 GB.

Note: we are requested to do partitions of 4GB and 6GB but we got one error “value out of range” message so, we decreased that partition size to 5.5 GB.

4. Verify whether the partitions were created properly or not.

```
sunam@kali:~$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x05a89833

Device     Boot    Start      End  Sectors Size Id Type
/dev/sda1  *        2048 44040191 44038144  21G 83 Linux
/dev/sda2       44042238 52426751  8384514   4G  5 Extended
/dev/sda5       44042240 52426751  8384512   4G 82 Linux swap / Solaris


Disk /dev/sdb: 10 GiB, 10737418240 bytes, 20971520 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xaddabae6

Device     Boot   Start      End  Sectors  Size Id Type
/dev/sdb1        2048  8390655  8388608    4G 83 Linux
/dev/sdb2     8390656 19924991 11534336  5.5G 83 Linux
sunam@kali:~$
```

i. Execute fdisk -l command again to confirm the partitions on newly added disk.

5. Format 4GB partition with xfs file system and another partition with ext4 file system.

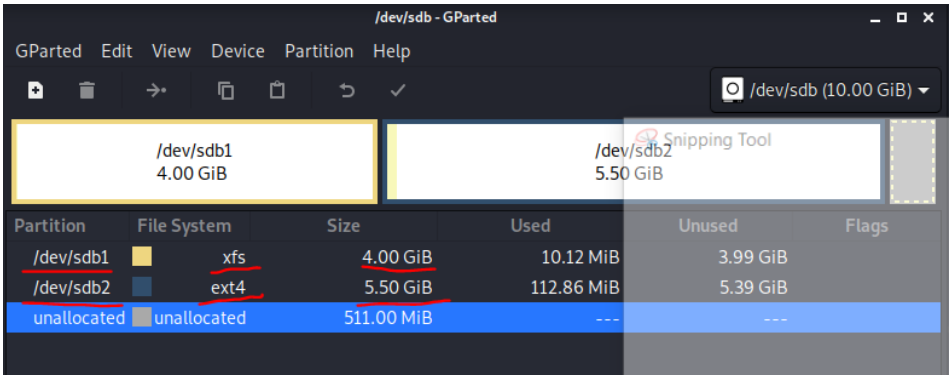
```
sunam@kali:~$ sudo mkfs.xfs /dev/sdb1
meta-data=/dev/sdb1              isize=512    agcount=4, agsize=262144 blks
         =                       sectsz=512   attr=2, projid32bit=1
         =                       crc=1        finobt=1, sparse=1, rmapbt=0
         =                       reflink=1
data     =                       bsize=4096   blocks=1048576, imaxpct=25
         =                       sunit=0      swidth=0 blks
naming   =version 2              bsize=4096   ascii-ci=0, ftype=1
log      =internal log           bsize=4096   blocks=2560, version=2
         =                       sectsz=512   sunit=0 blks, lazy-count=1
realtime =none                   extsz=4096   blocks=0, rtextents=0
sunam@kali:~$ sudo mkfs.ext4 /dev/sdb2
mke2fs 1.45.5 (07-Jan-2020)
Creating filesystem with 1441792 4k blocks and 360448 inodes
Filesystem UUID: a5ce510f-200f-4a3e-8c51-010b8fd9552e
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

sunam@kali:~$
```

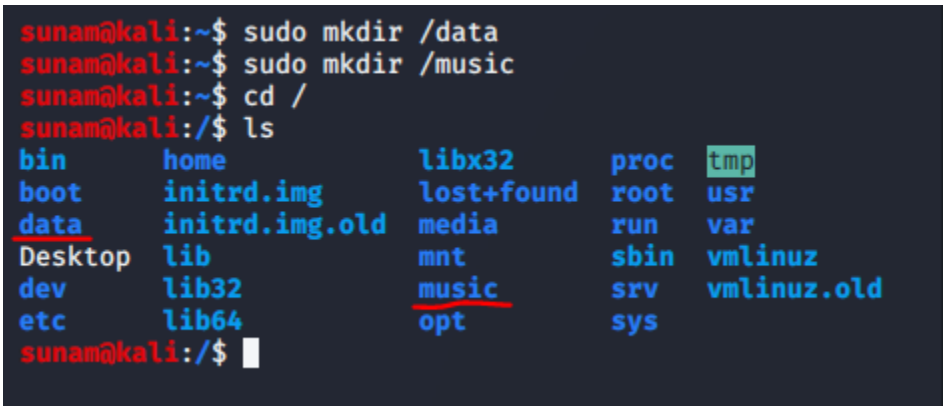
i. Execute mkfs.xfs [partition name] to format that particular partition with xfs file system.
ii. Execute mkfs.ext4 [partition name] to format that particular partition with ext4 file system.

6. Verify the file system and size of the partition through GParted (i.e. Graphical view)



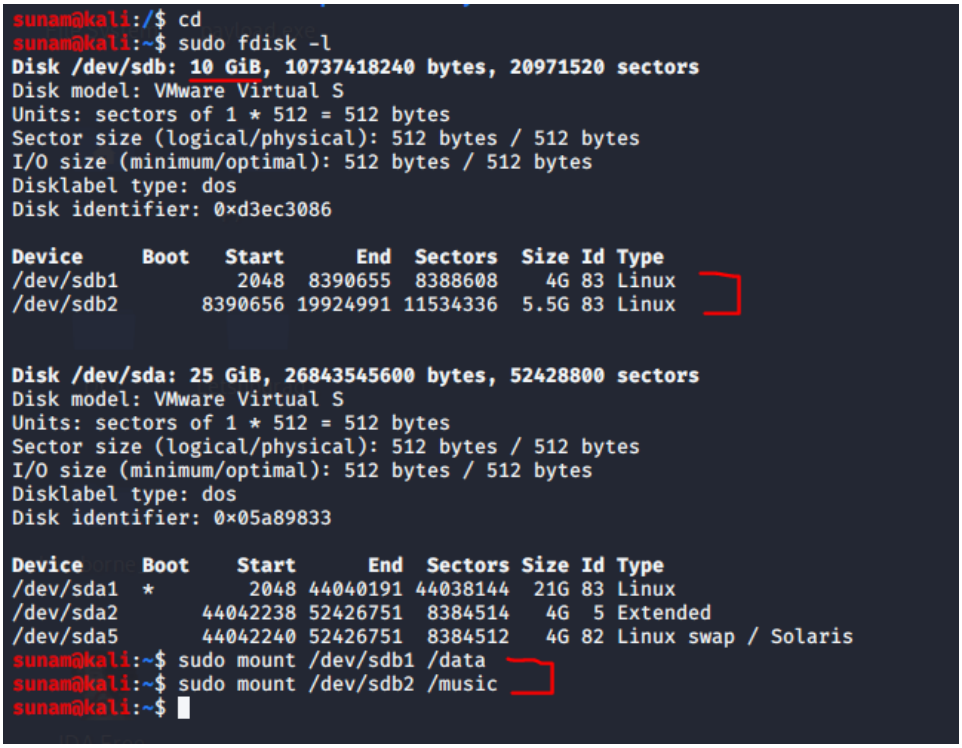
i. Open GParted tool on linux machine
ii. Select the disk and see the details of the partition.

7. Create directories to mount the partitions



i. Create /data directory to mount 4GB partition (xfs file system)
ii. Create /music directory to mount 5.5GB partition (ext4 file system)
iii. Check whether the directories created or not.

8. Checking the partitions and mount those partitions on respective directories.



i. Mounting 4GB partition to /data directory
ii. Mounting 5.5GB partition to /music directory

9. Verify whether the partition mounted on directories properly or not

i. Execute mount command to see the result (refer highlighted section on the above figure).

10. Create file on both directories /data and /music using sequence command and verify the file size

```
sunam@kali:~$ sudo seq 110100000 > /data/file1
sunam@kali:~$ sudo seq 110100000 > /music/file1
sunam@kali:~$ du -h /data
945M    /data
sunam@kali:~$ du -h /music
945M    /music
sunam@kali:~$
```

i. Here we have created a file on both directories having 945 MB size which is almost 1GB.
ii. We used du -h [directory name] to check the file size on those directories.

11. Verify the disk usage consumption on both mounted partitions.

```
sunam@kali:~$ df -h

Filesystem      Size  Used Avail Use% Mounted on
udev            2.9G     0  2.9G   0% /dev
tmpfs           599M  1.2M  598M   1% /run
/dev/sda1        21G   16G  3.8G  81% /
tmpfs           3.0G     0  3.0G   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           3.0G     0  3.0G   0% /sys/fs/cgroup
tmpfs           599M   12K  599M   1% /run/user/1000
/dev/sdb1       4.0G 1005M  3.1G  25% /data
/dev/sdb2       5.4G  967M  4.2G  19% /music
sunam@kali:~$
sunam@kali:~$
```

i. Execute df -h command
ii. Refer highlighted portion on the figure to see the result (it shows that 4GB partition used 25% of the disk and another partition used 19% of the disk. And we also can see the free space which we can use on those partitions.

Thank You!